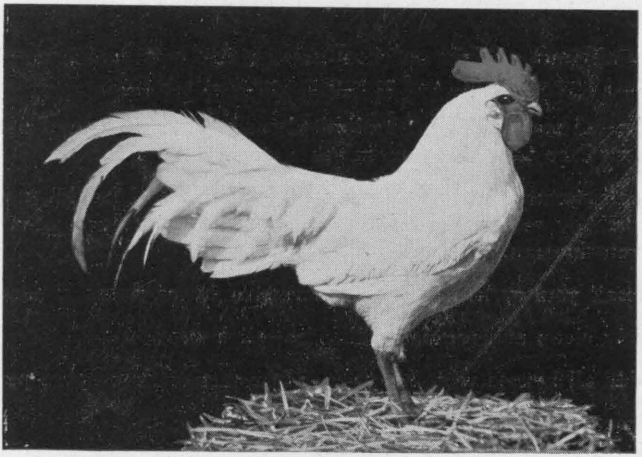


Keeping the Farm Flock Healthy

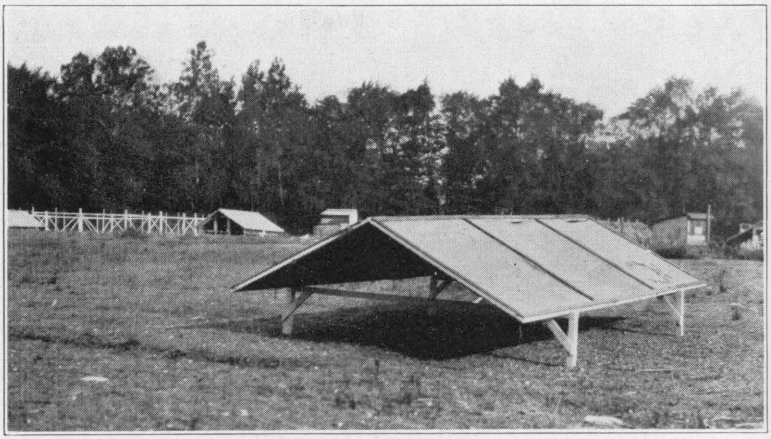
By H. H. ALP

UNIVERSITY OF ILLINOIS
COLLEGE OF AGRICULTURE AND AGRICULTURAL
EXPERIMENT STATION

Circular 374

Illinois Poultry Sanitation Plan

1. Grow all young chicks on clean grass range over which no chickens of any age were allowed to run the previous season.
2. Confine all mature fowls to a limited range, thru the use of double yards, and keep them away from other stock.
3. Test all mature fowls for avian tuberculosis and bacillary white diarrhea by recognized tests and under the supervision of a competent veterinarian.
4. Equip all poultry houses with concrete or board floors if possible.
5. Thoroly clean and regularly disinfect all houses.
6. Provide all houses with 3½ to 4 square feet of floor space per bird.
7. Provide well-ventilated houses.
8. Equip all houses with droppings boards.



A movable homemade shelter is to be preferred to most natural forms of shade. When fowls congregate beneath low bushes, and in fact any place where the sun does not penetrate, the place soon becomes foul with contamination.

Urbana, Illinois July, 1931

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H. W. Mumford, *Director*, Agricultural Extension Service, University of Illinois.

Keeping the Farm Flock Healthy

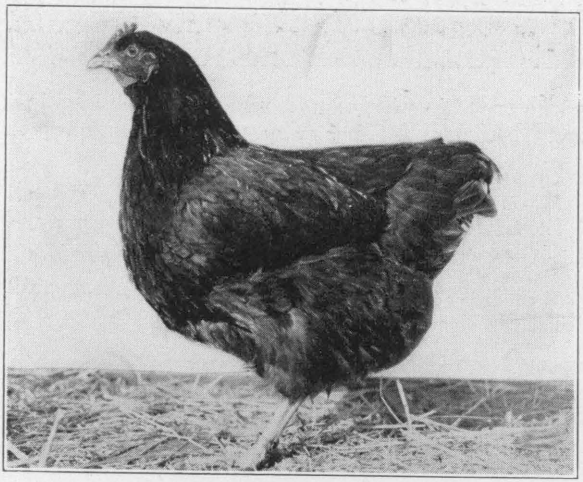
By H. H. Alp, Extension Specialist in Poultry Husbandry

Start With Vigorous Stock

HEALTH is the foundation for all enterprises that involve life in any form. A poultry enterprise is no exception.

Natural health and vigor are so important and so fundamental in a program of prevention of poultry diseases and parasites that every flock owner should endeavor to secure them as the first step in such a program. Certain individual birds are naturally more resistant to disease than others, and such inherited vigor and vitality should be considered in selecting birds for breeding purposes.

Good feeding is an important factor in the prevention of disease. It is only reasonable to expect poultry to be very much more subject to disease when their rations are deficient in quantity, in quality, or in the required nutrients. Change in body weight is an excellent measure of a bird's physical condition.

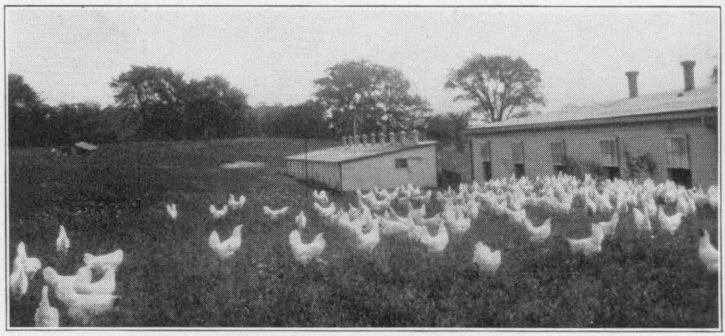


This hen hatched 9 pullets in 1929 and 10 in 1930 and all lived to maturity. Six of the 1929 pullets averaged 161 eggs each during their pullet year. Natural health and vigor inherited from the parent flock is largely responsible for such livability and performance.

Provide a Clean Range

Ground over which poultry has run for a number of years may soon become "chicken sick." This is particularly true when the flock is of large size. THE GREATEST GROUND CONTAMINATION USUALLY EXISTS IN THE GROUND NEXT TO THE POULTRY HOUSE. Worm and coccidia infestation are commonly carried over from year to year in contaminated ground; this fact makes it especially hazardous for poultry to be allowed free range over the same ground year after year.

Double Yarding Recommended. This practice is strongly recommended for mature flocks. It permits an alternate use of the

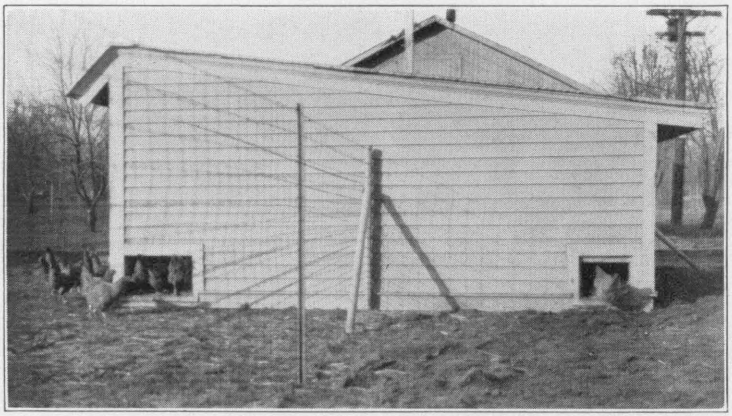


Many commercial poultrymen confine their laying flocks to yards. These yards are generally seeded to some crop, commonly to alfalfa.

yards and in this way helps to prevent serious permanent soil contamination. Triple yards are advisable for badly infested premises. Double yarding for chicks is advisable when the amount of range available is limited.

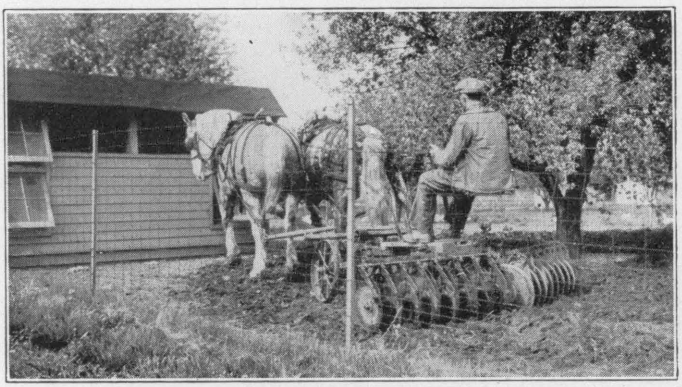
Plowing and Cultivating Yards. The plowing and cultivating of poultry yards, with the probable exception of those which are in good sod and have good drainage, is strongly recommended.

Larger Yards Preferable. The size of yards depends largely on the amount of ground available and on the size of the flock. For the average farm flock two yards one-fourth to one-half acre in size should provide sufficient range. Smaller yards, while not preferred, may be used if the birds are changed from one to another about every two months and the vacant yard is cultivated.



Locating the fence as shown above is a practical way of dividing the ground surrounding a poultry house into two yards. Note that a door opens from the house into each yard.

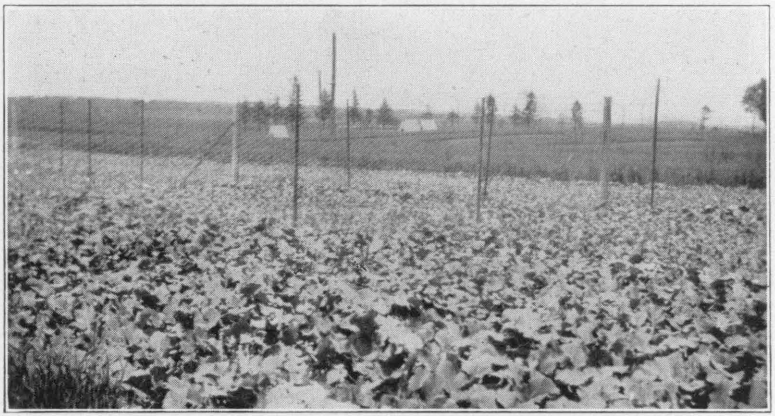
Location of Yards. While it is desirable, for many reasons, to have both yards run from the south side of the house, it may be necessary to use east and west or even north yards. A fairly satisfactory arrangement is to have a north and a south yard. The fences need not be permanent or high. A 5-foot fence is commonly used. The matter of soil drainage must be kept in mind when laying out yards, as wet ground is favorable to disease and parasitic development.



The occasional cultivating of the ground close to the poultry buildings helps materially to maintain sanitary conditions around poultry houses.

Cropping Yards. A system of cropping vacant yards helps considerably in clearing soil of disease microorganisms and parasite eggs, altho where a yard is of good size, is in a good bluegrass or clover sod, and has plenty of natural drainage, a year's rest from poultry will, as a rule, be sufficient.

Crops commonly used in poultry yards are wheat, rye, oats, and rape. Wheat and rye are best used in early spring. Oats and rape are more suitable for summer cropping. Swiss chard makes an ex-

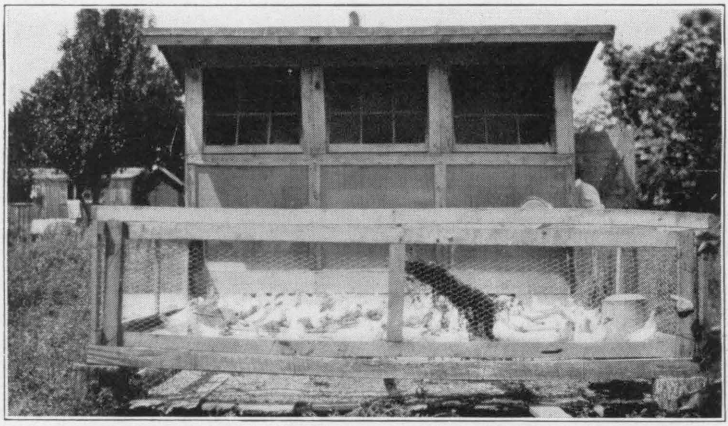


This splendid crop of rape in the poultry yards awaits the young pullets. Laying birds should not be allowed to eat any large quantity of rape, as it has a tendency to darken the color of the egg yolk.

cellent summer crop to be fed to birds confined to houses and yards. The spare poultry yard may be used for a vegetable garden.

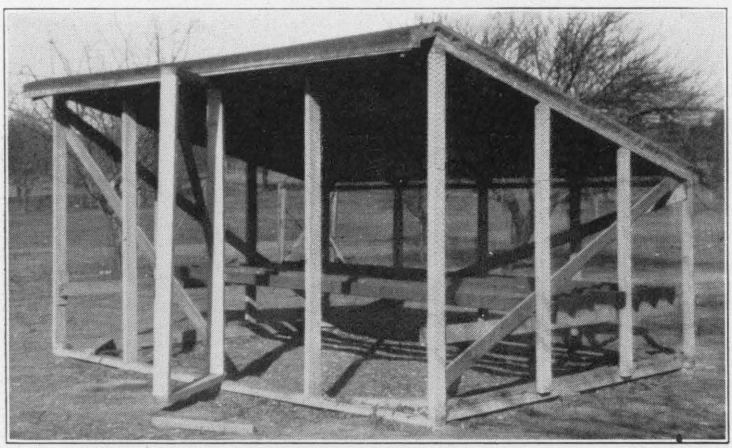
Treating Ground. Sunlight is by far the best soil cleanser. Fire is sometimes used as a means of destroying soil infestation. Raking and sweeping of ground close to the house during dry weather will do much toward maintaining clean conditions. There is little value in the artificial methods commonly used in treating poultry yards.

Confinement to Houses and Wire-Floor Pens. Poultry may be successfully confined to houses or to limited range in pens equipped with wire floors when sanitary conditions on the ordinary range are bad. (Circular 352 of this Station gives information on the construction of pens with wire floors.) This comparatively recent development in poultry management has become a standard practice with some poultrymen.



It is better to confine chicks to a brooder house and small outdoor pen with wire floor than to risk infection on a contaminated range. Read Circular 352 for information concerning this method of brooding.

Partial Confinement. Keeping chicks in confinement until they are old enough to do without heat and then moving them to a clean free range with a roosting or summer shelter is a very practical system of brooding. Keeping the laying flock confined during a part of each day will encourage more distant ranging.



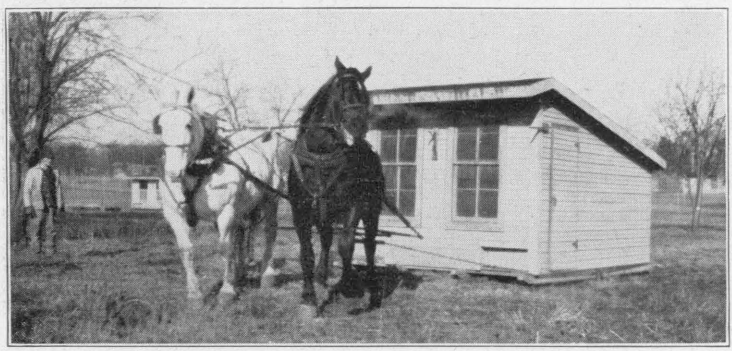
This 10-by-12-foot summer shelter, with roosting room for 175 mature pullets, makes a splendid substitute for the brooder house during hot weather and permits the pullets to have a house by themselves on clean range. It is cheaply and easily constructed.

Advantages in Movable Houses

The use of movable houses is often the only way of providing clean range. For chick brooding there is probably no method so

A good-type colony brooder house with a clean alfalfa range makes an ideal combination for brooding chicks. These brooder houses are located in an alfalfa field on a commercial poultry farm.

commonly used with as much satisfaction as the movable colony brooder house located on clean range. The sectional type poultry house deserves some consideration in this connection as it can be taken apart and moved to a new location.



Moving a 10-by-10-foot colony brooder house to a new location. With a good team such a house can be moved very easily, especially if the ground is frozen or the grass is wet.

Keep Poultry Houses Clean

A clean house kept clean is absolutely essential if poultry are to be kept free from disease and parasites.

Washing Poultry Houses. A mixture of boiling water and household lye is commonly used (1 pound of lye to 40 gallons of water or stronger), and serves the purpose very well. The hot lye solution, applied as near the boiling point as possible, helps to remove dried manure and dirt that may be on the floor, walls, and equipment in the house. It is of value also in destroying the thick protective shell of parasite eggs.

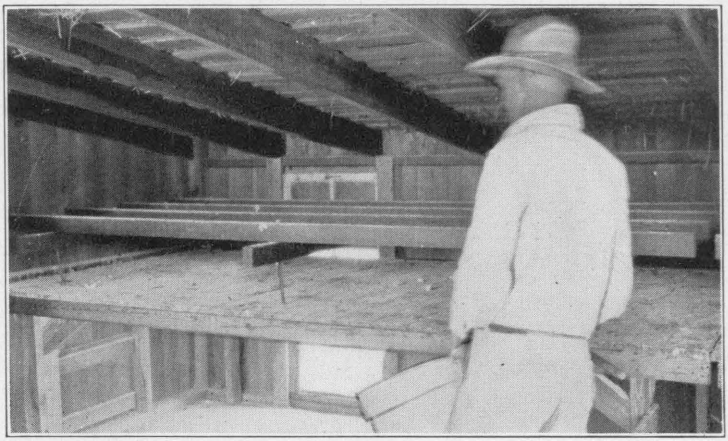
Spraying Poultry Houses. Following a washing it is advisable to apply a spray that contains some good disinfectant. (See page 15 for kind of disinfectants.) The value and effectiveness of a spray is increased by using the lye solution described above just before spraying. The house should be thoroly dry when the spray is applied.

Keeping a Clean House Clean. Once a house is thoroly washed and sprayed, there should be little need for this work to be done again except at the conclusion of the laying year, the brooding season, or before putting a new group of birds into a house that has been previously used for poultry.

Following a thoro washing and cleaning of a poultry house, it is advisable to spray it well. A small hand spray is a very useful and worthwhile piece of equipment.

Frequent Cleaning Checks Diseases and Parasites. All litter and droppings should be taken out of the house frequently, particularly during hot weather. Accumulated droppings and dirty litter often become breeding places for disease organisms and parasites. Frequent cleaning will help to break up the normal cycle of development of poultry parasites, particularly worms and coccidia.

Clean Droppings Boards. Accumulated droppings on the droppings boards, particularly when the boards are not screened from the birds, may be the cause of a disease problem. It is recommended that the droppings boards be screened, to prevent the birds from coming in contact with the droppings, and that they be cleaned at least weekly.



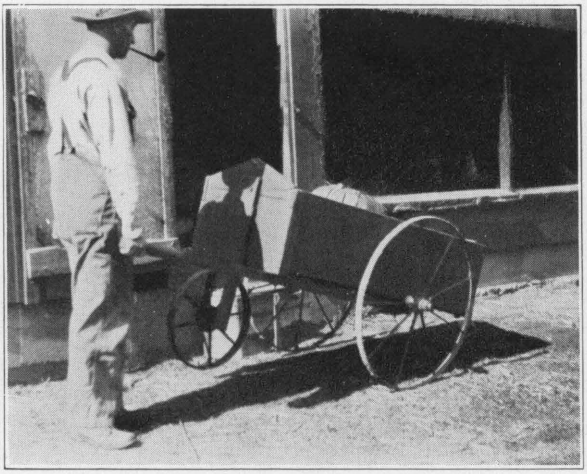
The droppings board should be cleaned frequently. Once a week is strongly advised.

Clean Floors. Dirt floors are extremely difficult to maintain in a sanitary condition. There is little value in sprinkling them with such materials as lime and lye water. A dirt floor over which diseased birds have run will, in all probability, contain the source of the pollution causing the trouble. Cement or board floors are much more satisfactory, and in most instances justify the expense involved in their construction. (Circular 337 of this Station gives detailed directions for proper floor construction.)

Clean Nests. Nests should be cleaned frequently. Dirty nests may harbor lice and mites as well as be the chief cause of dirty eggs. Shavings make an excellent litter for nests.

Clean Roosts. Some common materials for use in spraying or painting the roosts and their supports are used crank-case oil, nicotine sulfate, and various coal-tar disinfectants.

Roosts should be painted frequently to prevent development of lice and mites. Wire between the perches and droppings board keeps the chickens away from the droppings. Closely woven fencing may be used or strands of No. 9 wire spaced 1½ inches apart crosswise to the perches and stapled to the underside.



With a handy homemade cart the removal of droppings and litter is not a difficult chore.

Clean Eggs and Clean Incubators

Eggs contaminated with dirt and filth of any kind may be the means of spreading disease and parasites. This is particularly true of eggs used for incubation. The most practical solution of this problem usually is to provide conditions that will eliminate dirty eggs.

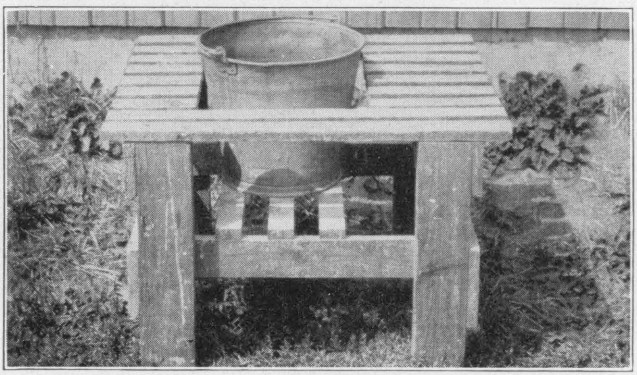
Clean nests, a clean house, keeping the birds confined to the house during the laying period of each day while it is wet and muddy outdoors, and supplying 1 nest to every 5 hens, should help materially to reduce the number of dirty eggs.

Dirt and filth in the incubator or the incubator room imperil the health of newly hatched chicks. This is particularly true of bacillary white diarrhea (pullorum disease); cleanliness during the hatching period is all-important in the control of this disease.

The following practices are recommended: Regularly wash and disinfect all egg trays, nursery trays, and nursery cloths. Thoroly dust and spray the interior of the machine at frequent intervals with a standard germicide solution suggested by manufacturers' instructions. Keep the incubator room clean at all times and well ventilated. Follow closely the directions of the manufacturers regarding incubator fumigation and sanitation.

Supply Clean Feed and Drink

The only way many of the most troublesome diseases and intestinal parasites of poultry have of attacking the bird is thru its



A satisfactory and practical drinking stand. The slatted construction is a great aid in keeping the stand clean.

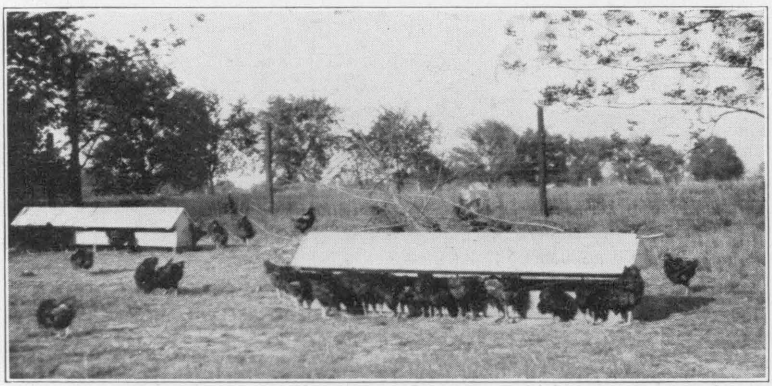
feed and drink. The birds must either eat or drink the infection. Everything possible should be done, therefore, to keep feed and water from becoming contaminated.

Feeders and waterers should be so constructed that feed and drink will not become soiled with droppings. Outdoor feeders should be moved frequently to clean locations. Feeding grain from clean troughs or hoppers rather than from dirty floors and contaminated ground will do much to cut down the chances of the birds becoming infected with diseases and parasites thru their feed. Placing the drinking trough or dish on a wire platform, or surrounding it with gravel or cinders, will help to maintain clean conditions around drinking utensils.

Guard Against Outside Sources of Infection

Pigeons and Sparrows. The nesting, roosting, or feeding of any number of wild birds in the vicinity of domesticated poultry may result in diseases and parasites being carried to the poultry flock. Sparrows and pigeons should be excluded from poultry houses. This can be easily done by using small-mesh wire netting over the windows.

Visitors. Poultry diseases and poultry parasites can be carried from an infected to a noninfected flock on shoes and clothing. It is good policy to be careful about allowing visitors or salesmen



This type of homemade feeder makes it possible to maintain clean feed. For plans and detailed information on the construction of feeders, read Circular 333.

to walk thru poultry houses without first disinfecting their shoes. A doormat soaked in disinfectant is often used for this purpose.

New Birds. Many an outbreak of colds, roup, and chicken pox follows the bringing of new birds into a flock. Birds that have been shipped in or brought in from outside flocks should always be held for a week to ten days in quarantine before being placed with the flock.

Handling Sick Birds

Anyone working with sick poultry should be careful to avoid spreading disease by contaminated hands or clothing.

Isolate or Kill Sick Birds Immediately. As soon as a sick bird is noticed, it should either be destroyed at once or removed from the flock. Thru its droppings a sick bird may spread disease or parasites thru the flock. Killing infected fowls usually pays better than trying remedies.

Killing Sick Birds. Pull the neck; do not cut the head off. Blood is often the carrier of the disease organisms and, when spattered around, may easily spread disease.

Burn Carcasses. This is the safest way of disposing of diseased carcasses.

A simple way to kill poultry is to break the neck. Place the thumb across the back of the head, then turn the head at right angles to the neck. In this position give a firm downward pull. No bleeding takes place.

Some Common Disinfectants[1]

Compound Solution of Cresol (liquor cresolis compositus, U.S.P.) This is an efficient disinfectant when used at the rate of at least 4 ounces to each gallon of water. It is recognized by the United States Pharmacopeia as an official preparation.

Cresol[1] (commercially known as liquid carbolic acid). Cresol is a good disinfectant when used in the proportion of 2 to 3 ounces to a gallon of water. Since it does not mix well in cold water, warm water should be used. The value of this disinfectant is determined by the amount of cresylic acid it contains; cresol containing less than 90 percent should not be used.

Formaldehyde.[1] Formaldehyde may be used either as a gas or in a liquid form as a germicide. Formaldehyde is of little value, however, for killing insects. As a liquid it is generally used at the strength of 6 ounces of 40-percent formaldehyde to one gallon of water; and as a gas, 20 ounces of 40-percent formaldehyde poured on 16⅔ ounces of crystallized or powdered permanganate of potash for each 1,000 cubic feet of air space. For the gas to be effective the room must be practically air-tight, the atmosphere must be moist, and the room must be left closed for at least 12 hours.

Formaldehyde may be used in fumigating incubators. As incubators vary in type of construction, it is recommended that manufacturers' suggestions be obtained in this connection.

Various Commercial Coal-Tar Disinfectants. Many commercial disinfectants sold under various trade names may be used.

Hydrated Lime. Hydrated lime is of some value when sprinkled on poultry runs and filthy puddles, but its value is likely to be overrated.

Gypsum. Gypsum is of considerable value as a deodorant and in helping to maintain sanitary conditions on the droppings board or wherever manure is accumulating. Flies are not so apt to breed in chicken manure when it has been liberally sprinkled with gypsum.

Formula for Whitewash. Dissolve 3 pounds of glue in about 2 gallons of water. Make a thick cream of 50 pounds (1 sack) of hydrated lime and about 7 gallons of water. Add the glue solution to the lime, stirring constantly. Thin to desired consistency.

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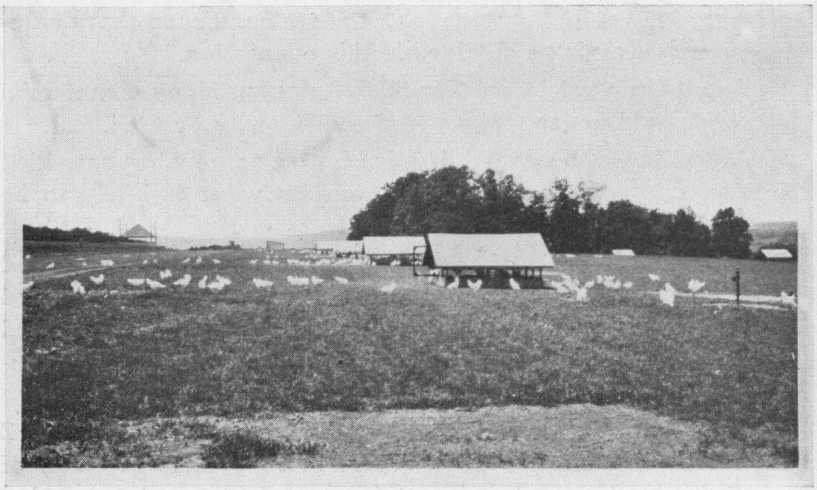
[1]Farmers' Bulletin 954 of the U. S. Department of Agriculture, is the authority for the recommendations concerning the quantity of disinfectant to be used.

How to Handle Disease

In case disease appears in the flock, the first essential is a correct diagnosis. In recent years many Illinois veterinarians have received special training in the diagnosis and control of poultry diseases. These men are in a position to give expert diagnostic service. Take typically affected specimens to them for autopsy. After the nature of the disease has been established, consult with them regarding methods of treatment. Qualified veterinarians should also be employed for the application of the tuberculin and pullorum-disease tests. Obscure diseases of poultry may be referred by the veterinarian to the Laboratory of Animal Pathology, University of Illinois, for study and diagnosis.

By careful feeding, systematic culling, intelligent selection and breeding, and the use of recognized tests for disease diagnosis, flocks can be developed which, under sanitary environment, should be and should remain comparatively free from disease and parasites.



IDEAL RANGE CONDITIONS